

K. Takayama et al.
U.S. Serial No. 10/722,332
Page 6 of 8

REMARKS

Claims 1-18 are pending in the application. Claims 1, 2, 6, 12, and 13 have been amended to overcome the rejections under 35 USC 112, second paragraph, but are not otherwise amended substantively. Claims 17 and 18 were withdrawn from consideration as being directed to non-elected subject matter. The amendments are fully supported by the application as originally filed (see, e.g., specification at page 19, last paragraph to page 25, first paragraph).

Claims 1-16 were rejected under 35 USC 112, second paragraph, as being indefinite because of the term "absolute value of magnetization." Independent claims 1 and 12, and dependent claims 2, 6, and 13 have been amended to remove the language "absolute value of total magnetization," and now recite "residual magnetization." The term "residual magnetization" is fully supported by the specification as originally filed (see, e.g., specification at page 19, last paragraph to page 25, first paragraph). It is believed that the amendments to claims 1, 2, 6, 12, and 13 obviate the rejections under 35 USC 112, second paragraph.

Applicants' claimed invention is directed to a magnetic recording medium, comprising a three-layer structure formed on a substrate, where the three layers comprise: (1) a metal layer 3, (2) a first magnetic layer 4, and (3) a second magnetic layer 5 that are stacked in this order (see claims 1 and 12; and FIG. 1, for example). As recited in independent claims 1 and 12, the second magnetic layer has a greater peak residual magnetization than the first magnetic layer.

Claims 1, 4, 5, 7-9, 11, 12, and 14-16 were rejected under 35 USC 102(a) as anticipated by or, in the alternative, under 35 USC 103(a) as obvious over European Publication 1 098 306 to Hirokane et al. ("Hirokane"). Claims 2, 3, 6, 10, and 13 were rejected under 35 USC 103(a) as being unpatentable over Hirokane. These rejections are respectfully traversed.

In the Office Action of 02/09/2006, layers 2, 3, and 4 shown in FIG. 1 of Hirokane were cited as allegedly corresponding to the Applicants' claimed "metal layer," "first magnetic layer," and "second magnetic layer," respectively (see Office Action at page 4, second paragraph).

K. Takayama et al.
U.S. Serial No. 10/722,332
Page 7 of 8

Hirokane does not teach or suggest the Applicants' claimed magnetic recording medium in which three layers are mounted on a substrate, and a second magnetic layer has a greater peak residual magnetization than a first magnetic layer.

Hirokane discloses a four-layer structure in which a storage layer (first magnetic layer) 4, a magnetic flux-forming layer (second magnetic layer) 3, a non-magnetic intermediate layer 2, and a reproduction layer (third magnetic layer) 1 are stacked in this order (see paragraph 0019 of EP 1 098 306).

In Hirokane, the magnetic flux forming layer 3 has a larger "peak value of net magnetization" than the storage layer 4 (see paragraph 0035 of EP 1 098 306). In the Office Action of 02/09/2006 layers 3 and 4 of Hirokane were cited as corresponding to the Applicants' claimed "first magnetic layer" and "second magnetic layer," respectively (see Office Action at page 4, second paragraph).

However, claims 1 and 12 require the second magnetic layer to have a greater peak residual magnetization than the first magnetic layer, whereas Hirokane discloses the *opposite*, that is, the magnetic flux forming layer 3 has a larger peak value of net magnetization than the storage layer 4 (see paragraph 0035 of EP 1 098 306).

Moreover, Hirokane is directed to a four-layer structure, not the three-layer structure recited in claims 1 and 12. The reproduction layer (third magnetic layer) 1 in Hirokane cannot be considered as corresponding to Applicants' claimed "substrate" at least because it does not have the structure or function of a "substrate" as known to those of ordinary skill in the art.

In Hirokane, the reproduction layer (third magnetic layer) 1 "exhibits perpendicular magnetization at a critical temperature and higher temperatures" (see paragraph 0019 of EP 1 098 306), where the reproduction layer (third magnetic layer) 1 is magnetostatically coupled to the layers 3 and 4 (see paragraph 0020 of EP 1 098 306), and thus cannot be considered a "substrate" as claimed.

K. Takayama et al.
U.S. Serial No. 10/722,332
Page 8 of 8

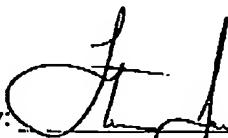
In contrast, in the Applicants' invention, the metal layer 3 is formed on a substrate 2, where the metal layer 3 has grains on a surface facing the substrate 2, which increases the coercivity of the magnetic recording medium 1 (see FIG. 1 of application; and page 16, last paragraph to page 17, first paragraph). The Hirokane reference does not teach or suggest any corresponding structure or function.

For at least the reasons discussed above, the Hirokane reference does not anticipate or otherwise render obvious the Applicants' claimed invention as recited in independent claims 1 and 12.

Claims 1-16 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 and 22-31 of U.S. Patent 6,678,219 to Hirokane et al. However, at least because of the structural and functional differences discussed above, claims 1-20 and 22-31 of U.S. Patent 6,678,219 do not teach or suggest the Applicants' claimed invention as recited in claims 1-16. It is believed that the above arguments obviate the double patenting rejection.

It is believed the application is in condition for immediate allowance, which action is earnestly solicited.

Respectfully submitted,

By: 
Steven M. Jensen
(Reg. No. 42,693)

Edwards Angell Palmer & Dodge
P.O. Box 55874
Boston, MA 02205

Phone: (617) 439-4444

Customer No. 21874